Fending Off Siberian Moths

The moth is probably one of Russia's top three pests in economic damage

If the Siberian moth gets into the northern United States and Canada, the gypsy moth would pale by comparison, says Victor C. Mastro, director of USDA's Animal and Plant Health Inspection Service (APHIS) center at Otis Air National Guard Base in Massachusetts.

A major defoliator of spruce, larch, and fir forests in its native Siberia, "the moth is probably one of Russia's top three pests in economic damage," he says. "We want to identify and block the routes it could take to get into this country."

Assessments by USDA's Forest Service and APHIS rank the Siberian moth, *Dendrolimus superans sibiricus*, as a moderate risk for becoming established here—and a high risk for damaging conifer forests, according to Iral Ragenovich. She is a regional entomologist with USDA's Forest Service in Portland, Oregon. An infestation, she adds, would also cause quarantines on trade—within the country as well as from outside.

Thanks to a pheromone monitoring system, the Asian gypsy moth was detected and eradicated before it became established here, says Ragenovich.

The threat of the Siberian moth prompted Ragenovich, Mastro, Agricultural Research Service entomologist Jerome A. Klun in Beltsville, Maryland, and Russian entomologist Yuri N. Baranchikov in Krasnoyarsk, Russia, to collaborate on a project to keep the moth from emigrating. Part of the funding came from USDA's Foreign Agricultural Service, the fourth USDA agency involved in this collaboration.

The first line of defense against the moth's invasion is to track the insect's whereabouts and population sizes in its native habitat and at possible ports of entry and habitats in the United States. That means using some kind of trapping system for monitoring the pest. And trapping requires a lure.

That's where Klun's expertise in synthesizing insect pheromones came in. Klun is with the Insect Chemical Ecology Laboratory in Beltsville.

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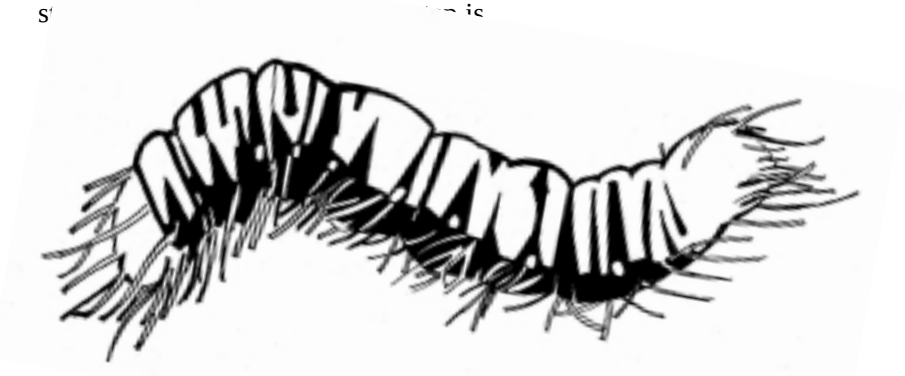
He analyzed the real pheromone from the female Siberian moth but didn't have enough material to positively identify it. So, based on known pheromones from related species, he assembled seven different mixtures in time to test them during the moth's late July 1998 mating season in Siberia.

One of those mixtures—four alcohols and four aldehydes—was as potent as the females themselves in enticing males into traps laid by Baranchikov. He used APHIS traps originally designed for the gypsy moth. But the trap's entry was enlarged to accommodate the bigger Siberian moth with its nearly 3-inch wingspan, compared to the gypsy moth's span of about 1 inch.

Last summer, Baranchikov and Ragenovich tested pure compounds provi[illegible] found the mixture was s[illegible]



to find a company to synthesize the best blend.

"With luck," says Mastro, "we'll begin small-scale deployment of traps next year in forests near likely sources of introduction."—By **Judy McBride,** ARS.

This research is part of Crop Protection and Quarantine, an ARS National Program (#304) described on the World Wide Web at http://www.nps.ars.usda.gov/programs/cppvs.htm.

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